REMARKS

Claims 1-16 were rejected under 35 U.S.C. § 102(b) as being anticipated by Wiener, U.S. Patent No. 5,524,679, hereinafter ("Wiener"). The claims 9-12, 14, and 16 were rejected under 35 USC § 113(a) as being unpatentable over Wiener in view of Huang, U.S. Patent Application No. 2002/0078138, hereinafter ("Huang"). Independent claims 1 and 15 have been amended to correct a clerical error. Claims 17-20 have been added. The Applicant submits that these minor amendments and corrections herein are made without prejudice and not to overcome prior art, and that no new matter has been added.

Claims 1-16 are not anticipated by Wiener under 35 U.S.C. § 102(b)

Claims 1-16 were rejected under 35 U.S.C. § 102(b) as being anticipated by Wiener. The Applicant respectfully disagrees.

Referring to the Wiener summary, col. 2, line 52 to col. 3, line 26, Wiener describes a woven structure in which optical fibers and electrical conductors are woven into a grid-like mat. The optical fibers are positioned in channels in a warp direction between supporting fibers woven in both woof and warp directions. The structure is manufactured using conventional weaving equipment by positioning both the optical fibers and a non-optical warp fibers and then weaving the woof fibers into place without causing micro-bends or discontinuities in the optical fibers. The woven grid-like mat can then be coated with a protective material. Referring to col. 3, lines 55-65, Wiener also teaches connectors having openings for accommodating the fiber optics and having electrical contacts to couple with the electrical conductors within the grid-like mat. Referring to col. 8, lines 29-40, Wiener describes an interconnect device which combines an array of electrical "sources" and an array of optical "detectors" and describes that electrical conductors are woven in the Wiener woven structure to control electrical sources and optical detectors. Referring to col. 8, lines 52-55, Wiener teaches, without further description, that switching, addressing, and gating elements *may* be incorporated in the interconnect device. Referring to col. 1 lines 32-38, and col. 3 lines 27-31, with respect to aircraft, Wiener describes implementation of the grid-like mat as a "smart" skin for sensing information on the surface of the aircraft.

Wiener does not describe a wiring *network* as featured in claim 1 or a wiring *system* for an aircraft as featured in claims 15, and 18. Wiener merely describes optical fibers woven into other material to provide sensors or "smart" skins for aircraft and other applications. *See* Fig. 1, and col. 1, lines 17-22. In other words, the Wiener woven structure, at best, is merely somewhat comparable to either the first element of each of the three independent claims 1, 15, and 18 (a plurality of conductors or conductive conduits) or a bus. Wiener's structure, however, may not be described simultaneously as both an array of conductors and a gateway in the form of a bus, as featured in claim 5.

Regarding the comparison of Wiener to the first element of each of the Applicant's independent claims 1, 15, and 18, Wiener does not describe a plurality of conductive conduits placed *between* layers of a fabrication assembly as featured in said claims, but instead teaches weaving the optical fibers into a grid-like mat using a weaving process. Wiener, in fact, appears to teach away from embedding the optical fibers as she teaches or suggests that it is disadvantageous to embed said optical fibers due to problems with kinking during curing. Col 2, lines 17-19. The referenced passage provided by the Examiner, col. 5, lines 31-34, merely describes that a coating 20 consisting of an elastomer or other suitable material can hold the optical fibers within the woof fibers 11A-D, and therefore does not support the Examiner's contention.

Wiener also does not describe first and second gateways attached to each end of each optical fiber. The reference provided by the Examiner, col. 8, lines 10-13, merely describes that the grid-like mat (Figure 7) can be used for transmission and reception of laser-generated optical signals in conjunction with packaging and interconnecting components. Of course, so can any optical fiber. As shown in Figure 7, it would appear the grid-like mat itself can be used as either a bus or an array of optical fibers. Without description, Wiener merely states that her interconnect device, which can interface with the grid-like mat to convert optical signals to electric and convert electrical signals to optics, can also include "gating elements." This is an insufficient description to be considered teaching a network or system structure including gateways attached to each end of each optical fiber, as defined by the Applicant. Applicant's gateways are true gateways forming part of the claimed wiring network (claim 1) or wiring system (claims 15, 18) in that they work in unison with each other such that the network or

system transmits and/or receives information between the gateways on a *selected* conduit. Weiner describes no such selection.

Finally, Wiener does not describe a controller for selecting a conduit from a plurality of conduits and for selecting and directing transmittable information over the selected conduit as featured in claims 1 and 15, nor does it describe a server for instructing at least one of the gateways to select a conduit from a plurality of conduits for carrying transmittable information over the selected conduit, as featured in claim 18. Wiener at col. 8, lines 29-40, appears to describe the use of the invention as a bus. Wiener, however, does not describe a controller, much less a controller for selecting a specific optical fiber from the array of fibers and selecting and directing transmittable information over any selected optical fiber.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference, whereby the identical invention must be shown in as complete detail as is contained in the claim. At best, Wiener almost teaches the first element (a plurality of conductive conduits), but even there, fails to describe its structural location (between layers). Thus, Wiener fails to teach each and every element of the independent claims 1, 15, and 18, and, as such, the claims are thus shown to be allowable. Correspondingly, dependent claims 2-14, 16-17, and 19-20 should also be allowed.

Regarding claim 2, Wiener does not disclose that its optical or nonoptical conductors are component specific. In fact, such argument is contrary to the Examiner's premise that the Wiener grid like mat is a bus made in the argument regarding claim 5.

Regarding claim 5, the Applicant concedes that just about any conductor can be implemented to be a bus, however, Wiener does not describe or suggest the Wiener woven structure is or can be used as a gateway. The only mention of "gating elements" is with respect to their inclusion in the interconnect device, which is not described as being or related to a bus.

Regarding claim 6, Wiener describes an interconnect device that combines an array of electrical sources and an array of optical detectors and describes that electrical conductors are woven in the Wiener woven structure to control the electrical sources and optical detectors. Wiener does not describe a gateway placed *between* layers of an assembly. The Wiener woven structure is the layer. The conductors are woven with non-conductors to form the layer and are thus not between the layers. Additionally, Wiener never describes a gateway other than the

description of the possible inclusion of "gating elements" with respect to the interconnect device. Even if the interconnect device is equated to a gateway, the interconnect device is described as connected to and *not* within the woven structure or between layers of the woven structure if stacked in layers.

Regarding claim 7, Wiener does not describe a server much less a programmable server. The reference provided by the Examiner, col. 8, lines 29-33, merely describe types of data and signals that may be transmitted via the Wiener woven structure but does not describe what type of component is performing the transmission or what is controlling such transmission.

Regarding claim 8, Wiener does not disclose gateways associated with each externally connected sensor (component) but merely mentions that the interconnect device can have "gating elements." The reference provided by the Examiner merely describes that use of large numbers of optical fibers facilitates construction of systems that require redundancy, multichannel, and/or parallel information transfers. No further elaboration appears to be provided. Thus, as these requirements can be accomplished without a gateway, Wiener does not inherently suggest that a gateway is required to be associated with each externally connected component. In fact, Figure 7 shows connections for external components but does *not* depict a gateway interface between them. Additionally, as stated prior, no server is described, much less one adapted for selecting any of the plurality of optical fibers for transferring information.

Regarding claim 9, Wiener does not describe selecting optical fibers for transmission based on a predetermined hierarchy. The Examiner's reference merely describes items that can be incorporated in the interconnect device.

Regarding claim 13, no central control center is described in the Wiener reference nor a plurality of components located remotely from the such central control center and control from such central control center.

Regarding claim 15, as stated with respect to claim 1, the optical fibers of the Wiener woven structure are not placed between layers, as featured in the claim, but are instead woven within the structure. Also as described with respect to claim 1, Wiener does not describe first and second gateways, but merely that the interconnect device can include "gating elements." Nor does Wiener describe a controller, much less a controller for selecting an optical fiber from

the plurality of optical fibers and for selecting and directing transmittable information over the selected fiber as featured in the claim.

Claims 9-12, 14, & 16 are not obvious by Wiener in view of Huang under 35 U.S.C. § 103(a)

The claims 9-12, 14, and 16 were rejected under 35 USC § 113(a) as being unpatentable over Wiener in view of Huang. The Applicant respectfully disagrees.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on Applicant's disclosure.

Regarding Wiener, as stated with respect to claim 1, the optical fibers of the Wiener woven structure are not placed between layers, as featured in the claim, but are instead woven within the structure. Also as described with respect to claim 1, Wiener does not describe first and second gateways, but merely notes that the interconnect device can include gating elements. Nor does Wiener describe a controller, much less a controller for selecting an optical fiber from the plurality of optical fibers and for selecting and directing transmittable information over the selected fiber, as featured in the claim.

Huang describes a control system architecture for a multi-component armament system. The thrust of the Huang invention is the connection of a plurality of armament component nodes to an intranet, connected in a hierarchical multi-tier arrangement whereby communications over the intranet are accomplished using a client/server communications scheme as opposed to connecting each of the armament component nodes directly to a single bus.

Huang does not describe a plurality of conductive conduits placed between layers of a fabrication assembly, a first and second gateways attached to one end of each conduit, nor a controller for selecting a conduit and for selecting and directing transmittable information over the selected conduit as featured in claims 1 and 15. In fact, Huang teaches away from point-to-

point communications schemes where a user interface component node is connected directly through a single bus to an armament component node.

Because Wiener and Huang combined do not teach or suggest all the claim limitations (the third requirement to establish a *prima facie* case of obviousness), the Examiner has not set forth such *prima facie* case. Claims 9-12, 14, and 16 have therefore been shown to be allowable.

Specifically regarding claim 9, Huang does not describe selecting the conduit on the basis of a predetermined hierarchy. The Examiner's reference, para. 0012, merely describes that the Huang intranet has a multi-tier or hierarchical model. The hierarchy described in claim 9 refers to selecting criteria such as a selection based on the shortest or next shortest route, or the path of lease resistance, etc. The Huang hierarchical model can best be described as something similar to a top-down management system having a client/server relationship between each of the nodes. These are not the same.

Regarding claim 10, Huang does not disclose selecting a conduit of least resistance. Referring to para. 0044, at best, Huang merely notes that it can be seen in Figure 5 that there can be a second connection of a node to the bus. Nothing teaches or suggests anything more than a simultaneous parallel connection whereby if one connection breaks the other is still providing a connection. Claim 10 features an active selection of a conduit. Huang does not describe any form of selection.

Regarding claim 11, Huang mentions nothing with respect to a selection much less a selection based on a shortest conduit. Huang does not actually appear to break its discussion down into such detail such as the selection of individual conduits or conductors.

Regarding claim 12, still referencing para. 0044, Huang does not even mention the term "gateway," or a conduit selector, much less a conduit selector on each gateway. A conduit selector, especially one associated with each gateway, is an important feature.

Regarding claims 14 and 16, referencing para. 0003, Huang merely discloses an electronic switch in the cockpit of a military aircraft that can send a signal through dedicated wiring to a weapon actuator. This switch is not the same as a controller or compartment connected to a gateway.

Note, even if the combination of Wiener and Huang taught each and every element of the independent claims 1, 15, and 18, Huang is nevertheless is not a proper reference. The point-to-

point structure Huang teaches away from, described above, more nearly describes the conduit connection between gateways than the multi-tier structure taught by Huang.

Also note, the Examiner has not set forth the second or first requirements for a *prima facie* case of obviousness. Regarding the second requirement, there would be little expectation of success if one were to combine the two references. The combination would only yield an intranet using strips of the Wiener woven structure replacing the 1553 bus or ethernet components used in the Huang intranet. Regarding the first requirement, there must and there is not some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Unlike sensors positioned adjacent the skin of an aircraft, which armament system an aircraft is carrying often changes depending upon the mission of the particular aircraft. Requiring an armament system to have the interface with optical fiber in the skin of an aircraft would clearly reduce versatility, thus, Wiener did not suggest or advocate such use. Also, Huang clearly had access to Wiener but chose not to implement or advocate the implementation of any such type structure in its multi-tiered intranet configuration.

CONCLUSION

In view of the amendments and remarks set forth herein, Applicants respectfully submit that the application is in condition for allowance. Accordingly, the issuance of a Notice of Allowance in due course is respectfully requested.

Respectfully submitted,

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